WHAT IS CLAIMED IS:

1. An apparatus for matching an impedance of an RF generator to an impedance of an RF load, for use in manufacturing semiconductor devices by using a plasma, comprising:

a variable inductor coupled to a variable capacitor and an invariable capacitor, said variable inductor having two inductors coupled electrically to each other and disposed adjacent to each other,

at least one of said two inductors being movable so that a magnetic flux of said at least one inductor interferes with a magnetic flux of an other one of said two inductors, to thereby control an inductance of said variable inductor.

2. The apparatus according to claim 1, wherein said two inductors comprise:

a fixed inductor formed of an oval and spiral shaped coil having a first number of coil turns, one end of said fixed inductor being connected with said variable capacitor; and

a rotating inductor formed of an oval and spiral shaped coil having a second number of coil turns, one end of said rotating inductor being connected with an other end of said fixed inductor, and an other end of said rotating inductor being connected with

said invariable capacitor,

current flows in said fixed and rotating inductors being opposite to each other, and the inductance of said variable inductor being controlled according to a rotated angle of said rotating inductor.

3. The apparatus according to claim 2, wherein each of said fixed and rotating inductors respectively include fixing elements that fix coil turns of coils forming said fixed and rotating inductors in spaced-apart relation to each other.

4. The apparatus according to claim 3 , wherein said fixing elements are 'E' shaped rings disposed at regular intervals between said coil turns of said coils.

5. The apparatus according to claim 4, wherein said 'E' shaped rings are formed of nonconductive material.

6. The apparatus according to claim 2, further including a transfer element that moves said rotating inductor toward and away from said fixed inductor.

7. The apparatus according to claim 2, further comprising connecting

members at connecting portions between said coils, and at connecting portions between said coils and said capacitors,

each of said connection members including a gripper having semi-arc shaped gripping portions, and a locking member for fastening the gripping portions.

8. The apparatus according to claim 2, wherein said coils of said fixed and rotating inductors are formed of Cu or Al.

9. The apparatus according to claim 2 , wherein each of said coils are formed of a conductive pipe having a plurality of conducting wires disposed therein.

10. The apparatus according to claim 1, wherein said two inductors comprise:

a band type rectangle and whirl shaped fixed coil, one end of said fixed coil being coupled electrically with said variable capacitor; and

a band type rectangle and whirl shaped rotating coil having a rotating axis penetrating said fixed coil, one end of said rotating coil being coupled electrically with an other end of said fixed coil, and an other end of said rotating coil being coupled electrically with said invariable capacitor,

a combined magnetic flux of said fixed and rotating coils being increasable or

decreasable according to a rotated angle of said rotating coil.

11. The apparatus according to claim 1, wherein said two inductors comprise:

a band type rectangle and whirl shaped fixed coil, one end of said fixed coil being coupled electrically with said variable capacitor; and

a band type rectangle and whirl shaped moving coil disposed movably in parallel with respect to said fixed coil, one end of said moving coil being coupled electrically with an other end of said fixed coil, an other end of said moving coil being coupled electrically with said invariable capacitor, and said fixed and moving coils being positioned spaced apart from and opposite each other,

a combined magnetic flux of said fixed and moving coils being variable according to an overlapping width between said fixed and moving coils as controlled by moving said moving coil.

12. The apparatus according to claim 1, wherein said two inductors comprise:

a circular and spiral shaped fixed coil, having a first number of coil turns, one end of said fixed coil being coupled electrically with said variable capacitor; and

a circular and spiral shaped moving coil disposed upward from said fixed coil and being movable upward and downward to be overlapped with or separated from said fixed

coil, said moving coil having a second number of coil turns, one end of said moving coil being coupled electrically with an other end of said fixed coil, an other end of said moving coil being coupled electrically with said invariable capacitor, and coil turns of said fixed coil having a winding width so as to be interspersed between each pair of coil turns of said moving coil,

a combined magnetic flux of said fixed and moving coils being variable according to an overlapping width between said fixed and moving coils as controlled by moving said moving coil upward and downward.

13. An apparatus for matching an impedance of an RF generator to an impedance of an RF load, for use in manufacturing semiconductor devices by using a plasma, comprising:

a variable inductor coupled to a variable capacitor and an invariable capacitor, said variable inductor having a band type rectangle and whirl shaped fixed coil and a rectangle shaped magnetic shield plate disposed in said fixed coil, said shield plate having an axis penetrating said fixed coil,

at least one of said fixed coil and said shield plate being disposed movably so that said shield plate interferes with a magnetic flux of said fixed coil, to thereby control an inductance of said variable inductor.

14. The apparatus according to claim 13, wherein first and second ends of said fixed coil are respectively coupled electrically with said variable capacitor and said invariable capacitor, and wherein a magnetic flux of said variable inductor is variable according to a rotated angle of said shield plate.

15. An apparatus for matching an impedance of an RF generator to an impedance of an RF load, for use in manufacturing semiconductor devices by using a plasma, comprising:

a variable inductor coupled to a variable capacitor and an invariable capacitor, said variable inductor including a circular and spiral shaped fixed coil having a given number of coil turns, and including a circular shaped magnetic shield plate disposed at a magnetic flux of said fixed coil, said shield plate having axes formed on both sides thereof,

at least one of said fixed coil and said shield plate being disposed movably so that said shield plate interferes with the magnetic flux of said fixed coil, to thereby control an inductance of said variable inductor.

16. The apparatus according to claim 15, wherein first and second ends of said fixed coil are respectively coupled electrically with said variable capacitor and said

invariable capacitor, and wherein a magnetic flux of said variable inductor is variable according to a rotated angle of said magnetic shield plate.

17. An apparatus for matching an impedance of an RF generator to an impedance of an RF load, for use in manufacturing semiconductor devices by using a plasma, comprising:

a variable inductor coupled to a variable capacitor and an invariable capacitor, said variable inductor having a circular and spiral shaped variable coil, a mounting plate on which one end of said variable coil is fixedly mounted, and a bar fixed to an other end of said variable coil through a center of said mounting plate and said variable coil,

said bar being disposed movably to change a length of said variable coil.

18. The apparatus according to claim 17, wherein the one end and the other end of said variable coil are respectively coupled electrically with said variable capacitor and said invariable capacitor, a magnetic flux of said variable inductor being variable according to the length of said variable coil as controlled by moving said bar.